

REMARKS

Claims 1-4 have been canceled. Claims 5-13 remain pending in the application. Applicants amend claims 5-9 and 12-13 for corrections and further clarification. No new matter has been added.

The Examiner objected to claims 5-9 and 12-13 for a number of apparent informalities.

Applicants amend claims 5-9 and 12-13 to consistently recite “the unicast virtual links,” as suggested by the Examiner. And Applicants amend claim 9 to more clearly recite specific “one or more other relaying apparatuses”—i.e. relaying apparatuses other than the claimed relaying apparatus.

In view of the foregoing, Applicants respectfully request that the Examiner withdraw the objections.

Claims 5 and 9 stand rejected under 35 U.S.C. § 112, second paragraph. Applicants amend claims 5 and 9 to address the antecedent basis issues raised by the Examiner, and, accordingly, respectfully request that the Examiner withdraw the 35 U.S.C. § 112 rejections.

Claims 5-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,039,687 to Jamieson et al. in view of U.S. Patent No. 6,181,697 to Nurenborg et al. Applicants amend claims 5 and 9 in a good faith effort to further clarify the invention as distinguished from the cited references, and respectfully traverse the rejections.

The Examiner relied upon Jamieson et al. (Fig. 1, col. 3, line 59 - col. 4, line 6) and interpreted “element A 10, Private Network Adaptation Devices” (PNAD) as allegedly disclosing first relaying apparatuses with virtual relaying structure, as recited in claims 5 and 9, and also relied upon Nurenborg et al. (Fig. 1, col. 3, lines 29-45 and col. 3, line 66 - col. 4, line 6) and interpreted “element 120, Multicast-Unicast Server” as allegedly disclosing the claimed first relaying apparatuses.

Neither Jamieson et al. nor Nurenberg et al. teach or suggest, however, control packets that are destined to a multicast address assigned to a virtual relaying structure and multicast by the first relaying apparatuses, as recited in claims 5 and 9. Jamieson et al. merely describe a possibility of using Hello packets.

The Examiner also cited col. 4, lines 6-11 of Nurenberg et al. as alleged disclosure of the first relaying apparatuses recited in claims 5 and 9.

Nurenberg et al. fail to teach or suggest, however, “first relaying apparatuses...and contains unicast address specific to the virtual relaying structure.” recited in claims 1 and 9. (Emphasis added)

Also, the Examiner relied upon Jamieson et al. (Fig. 1, col. 3, line 59 - col. 4, line 6) and interpreted “element B 10, Private Network Adaptation Devices” as alleged disclosure of second relaying apparatuses with virtual relaying structure, as recited in claims 5 and 9, and also relied upon Nurenberg et al. (Fig. 1, col. 3, lines 26-45 and col. 3, line 66-col. 4, line 6) and interpreted “element 121, Multicast-Unicast Server,” as alleged disclosure of the second relaying apparatuses.

Neither Jamieson et al. nor Nurenberg et al. teach or suggest, however, “second relaying apparatuses with virtual relaying structure...with the multicast address as destined for the virtual relaying structure...returning reply packets...through the unicast virtual links.” as recited in claims 5 and 9. (Emphasis added)

Furthermore, the Examiner relied upon Jamieson et al. (col. 2, lines 31-45 and col. 5, lines 54-64) for allegedly disclosing “whereby the virtual private network is...the public data communication network,” as recited in claims 5 and 9.

Jamieson et al. fail to teach or suggest, however, a virtual private network constructed with the virtual relaying structures which are specific to same multicast address in the first

and the second relaying apparatuses. Jamieson et al. merely describe distribution of VPN

information for establishing multiple label switched paths therebetween.

Eventually, Jamieson et al. fail to teach or suggest multicasting VPN information while providing VPN paths between virtual routers by transmitting the VPN information.

Although Nurenberg et al. describe transmission with a multicast address, in order for Jamieson et al. to use multicasting address like Nurenberg et al., the technique described in Jamieson et al. would require devising a mechanism for mapping VPN (identifier) or the virtual relaying structures which are specific to the same multicast address in first and second relaying apparatuses.

Thus, even assuming, arguendo, that it would have been obvious to one skilled in the art at the time the claimed invention was made to combine Jamieson et al. and Nurenberg et al., such a combination would still have failed to disclose or suggest,

“[a] virtual private network construction system for a public data communication network comprising:

first relaying apparatuses with virtual relaying structure generating and multicasting control packets each of which is destined to a multicast address assigned to the virtual relaying structure and contains a unicast address specific to the virtual relaying structure, and

second relaying apparatuses with virtual relaying structure, which receives the control packets from the first relaying apparatuses with the multicast address as destined for the virtual relaying structure, establishing unicast virtual links using the unicast address in the control packets with the first relaying apparatuses which are transmitting sources of the control packets and returning reply packets to the first relaying apparatuses through the unicast virtual links,

whereby the virtual private network is constructed with the virtual relaying structures that are specific to a same multicast address in the first and the second relaying apparatuses, with the unicast virtual links established between all pairs of the virtual relaying structures and with virtual interfaces receiving packets from outside the public data communication network,” as recited in claim 5. (Emphasis added)

Accordingly, Applicants respectfully submit that claim 5, together with claims 6-8 dependent therefrom, is patentable over Jamieson et al. and Nurenberg et al., separately and in combination, for at least the foregoing reasons. Claim 9 incorporates features that correspond to those of claim 5 cited above, and is, therefore, together with claims 10-13 dependent therefrom, patentable over the cited references for at least the same reasons.

In view of the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,

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